3c

ONKYO D

ONKYO®

SOLID STATE
STEREO AMPLIFIER
SERVICE DATA

MODEL- 733

SPECIFICATIONS

Type······All Silicon Transistor Integrated Stereo Pre-Main Amplifier.

Circuit···Direct-Coupling and Differential Amplifier, Pure-Complementary SEPP System, Transistor 50, Diode 19, Thermistor 2 and Posistor 4.

Main Amplifier(8 Ω load in case of no indication)

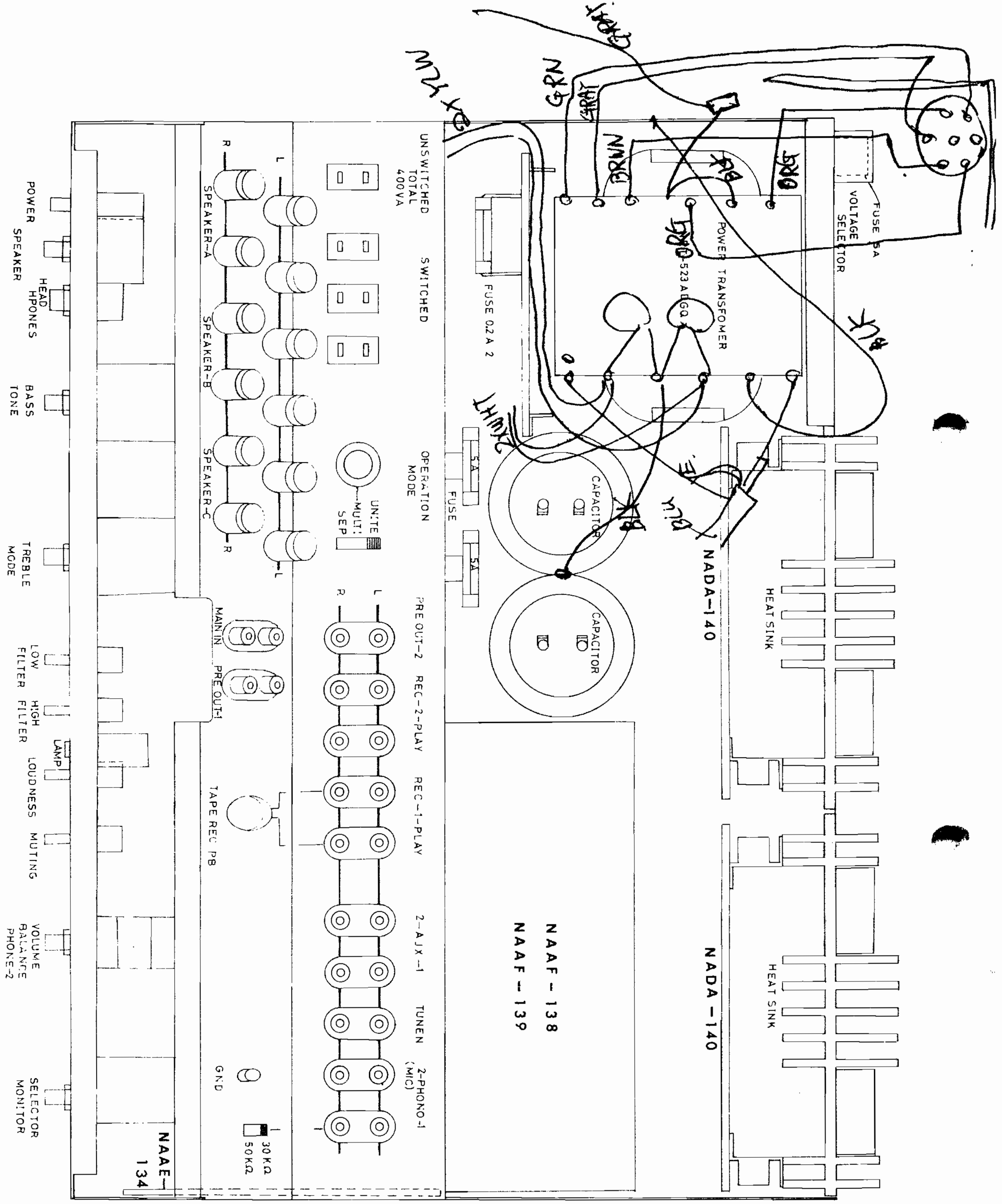
Dynamic Power:	IHF 8Ω 86W IHF 4Ω 130W
RMS Continuous Power: (Both Channel Driven)	8Ω 1KHz 34W+34W 4Ω 1KHz 40W+40W
Total Harmonic Distotion:	at rated output 1KHz less than 0.1% at 0.5W output 1KHz less than 0.03% at 10 W output 1KHz less than 0.03%
Inter Modulation Distortion:	at 34W output SMPTE 70Hz: 7KHz−4: 1 less than 0.05%
Fraquency Characteristic:	$^{+0}_{-1}$ dB at normal output 10Hz~70KHz
Power Band Width:	1HF-3dB, THD 0.2% IHF- 10Hz~100KHz
S/N:	IHF A Network Input Shunt better than 110dB
Damping Factor:	DC~20KHz 100
Load Impedance:	4Ω~16Ω
Input Impedance:	10Hz~50KHz 100KΩ
Gain:	24dB
Rated Input Voltage:	1V
Input/Output Characteristics:	in-phase
Output Terminal:	• SPEAKER A, B, C, A+B • Headphone

Pre-Amplifier

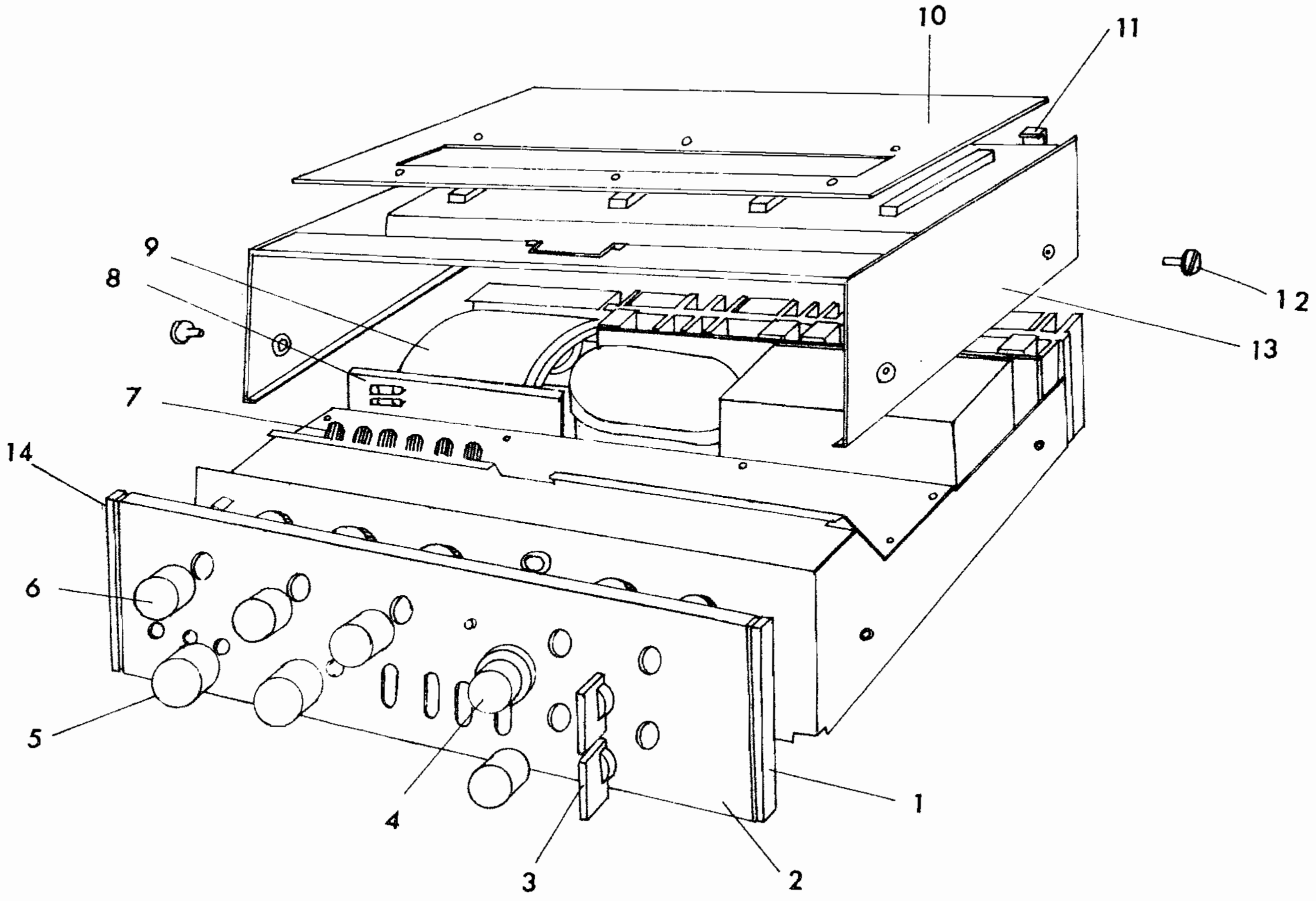
Input Sensitivity and Input Impedance:	PHONO−1 (1.03KHz) 2.4mV(50KΩ, 30KΩ) PHONO−2 MM 2.4mV(50KΩ) MC 100μV(80Ω) MIC 1.8mV(50KΩ) TUNER, AUX-1, AUX-2, PLAY 100mV(100KΩ)
Total Harmonic Distortion:	at 1V output 1KHz less than 0.05%
Inter Modulation Distortion:	SMPTE 70Hz: 7KHz 4: 1 less than 0.05%
Frequency Characteristics:	PHONO-1, PHONO-2 RIAA Characteristic ±0.5dB (30Hz~15KHz) TUNER, AUX-1, AUX-2, PLAY $^{+0}_{-1}$ dB at 1V output 10Hz~70KHz
Max. Allowable Input(Phono):	MM 1KHz(10KHz) 210mV(980mV) RMS MC 1KHz(10KHz) 9mV(41.5mV) RMS
S/N (IHF A Network Input Shunt)	PHONO-1 MM better than 75dB MM better than 75dB MC better than 55dB TUNER, AUX-1, AUX-2, PLAY better than 90dB
Output Voltage and Impedance:	PREOUT-1, PREOUT-2 1V(Rated Output) 4V(Max. Output) (100KΩ at load) Output Impedance 2.2KΩ PRE-OUT 100mV(Rated Output) (Open terminal Voltage) Output Impedance(PHONO) 10KΩ
Tone Control 2dB/Step Switch Type:	TREBLE ±10dB @ 10KHz BASS ±10dB @ 100Hz
TONE SWITCH:	TREBLE DEFEAT. ON BASS DEFEAT. ON HIGH FILTER(−3dB) 7KHz 12dB/oct LOW FILTER(−3dB) 70Hz 12dB/oct
Muting:	−20dB
Loudness:	VR, −30dB 6dB(100Hz)
Input/Output Polarity:	MC−Amp anti-phase EQ−Amp(MIC) in-phase TONE−Amp anti-phase
Transient Killer Operation Time:	when SW is turned on. 3sec. when SW is turned off. 0.5sec.
Power:	AC100, 110, 120, 220, 240V 50/60Hz
Power Consumption:	Electrical Goods Control Standards 80W
AC Output:	SWITCHED 3 UNSWITCHED 1
Dimensions:	437(W)×355(D)×136(H)
Weight	11.5kg

30

CHASSIS LAYOUT TOPVIEW


POWER SPEAKER
HEAD HPONES
BASS TONE
TREBLE MODE
LOW FILTER
HIGH FILTER
LAMP
LOUDNESS
MUTING
VOLUME BALANCE PHONE-2
SELECTOR MONITOR
NAAE-134
R
L
SPEAKER-A
SPEAKER-B
SPEAKER-C
MAIN IN
PRE OUT-1
TAPE REC PB
GND
30KΩ
50KΩ
UNSWITCHED TOTAL 400VA
SWITCHED
OPERATION MODE
UNITE
MULTI
SEP
PRE OUT-2
REC-2-PLAY
REC-1-PLAY
2-AJX-1
TUNEN
2-PHONO-1 (MIC)
FUSE 0.2A 2
5A
FUSE
5A
CAPACITOR
CAPACITOR
NAAF-138
NAAF-139
NADA-140
NADA-140
HEAT SINK
HEAT SINK
POWER TRANSFOMER
523AEGQ
FUSE 5A
VOLTAGE SELECTOR
GRN
GRAY
BRWN
BLK
ORG
ORG
BLK
BLK
BLK
BLK
2X YLW
2X YLW

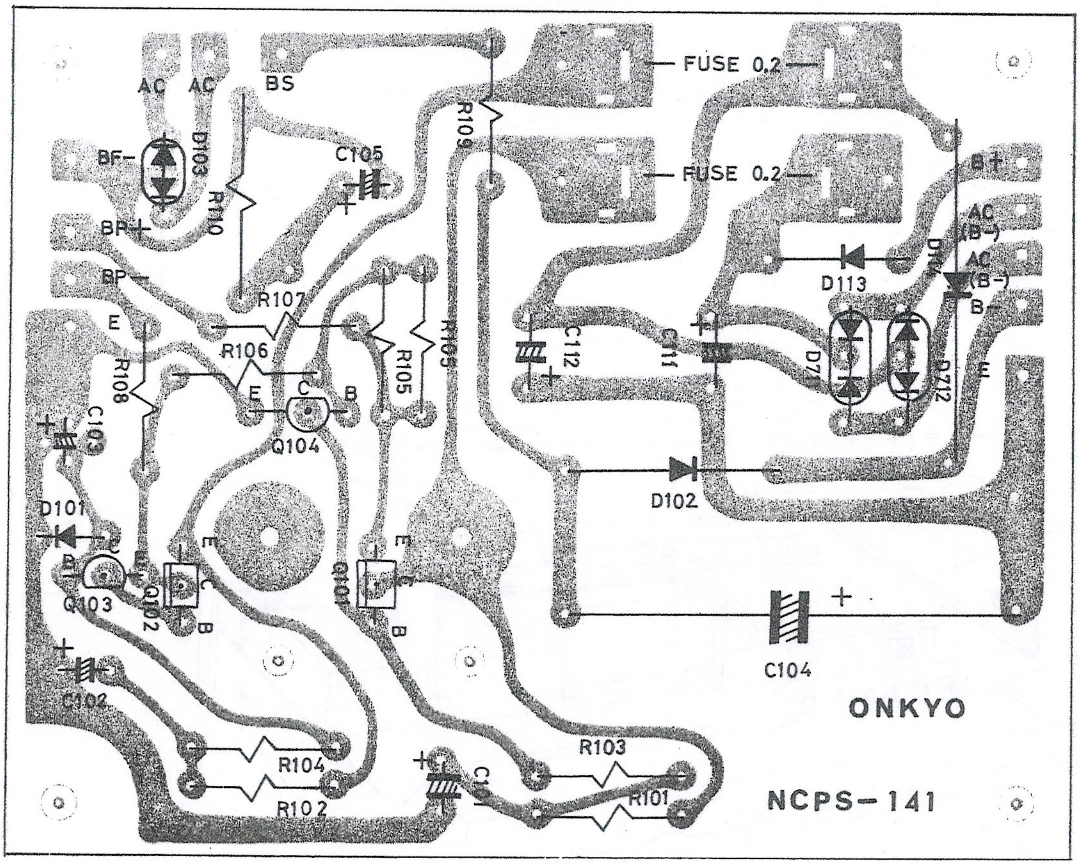
COMPONENT LOCATIONS



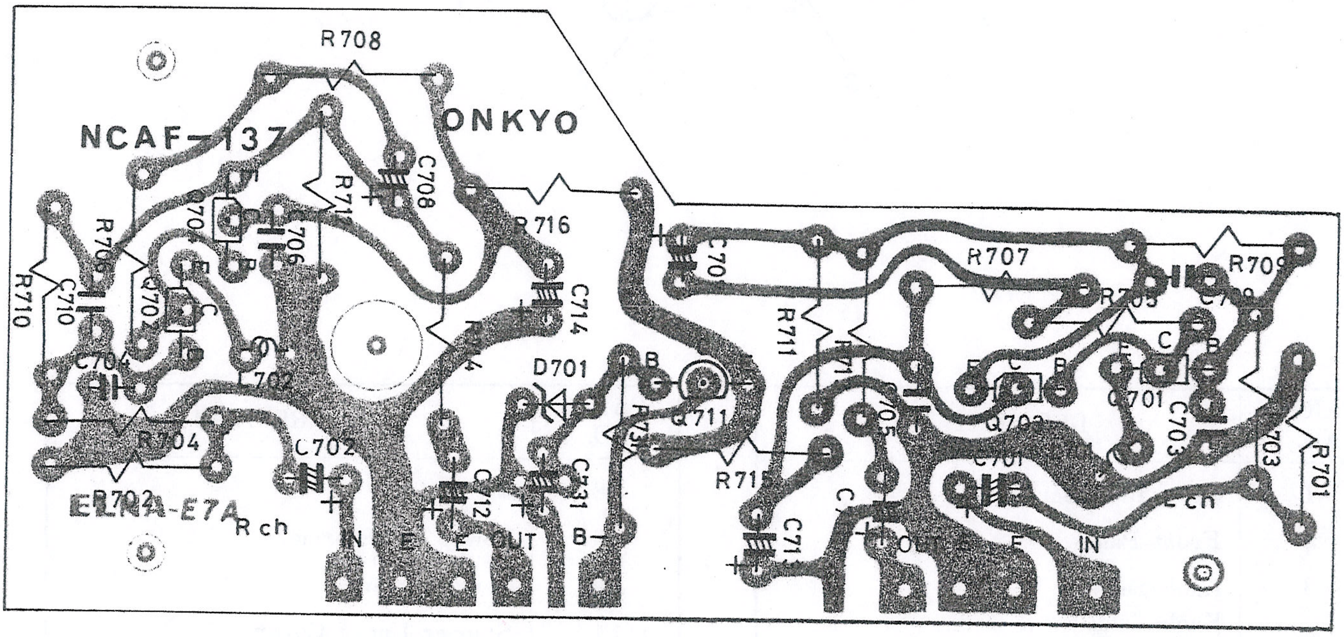
PARTS NO.	DESCRIPTION
1	Decoration Bar Right
2	Front Panel
3	Knob-Selector
4	Knob-Volume Knob-Balance
5	Knob-Mode
6	Knob-Tone
7	Terminal Ass'y

PARTS NO.	DESCRIPTION
8	NAPS-141
9	Power Transformer
10	Cover-Uprer
11	Stopper-Upper Cover
12	Screw-Case
13	Case
14	Decoration Bar Left

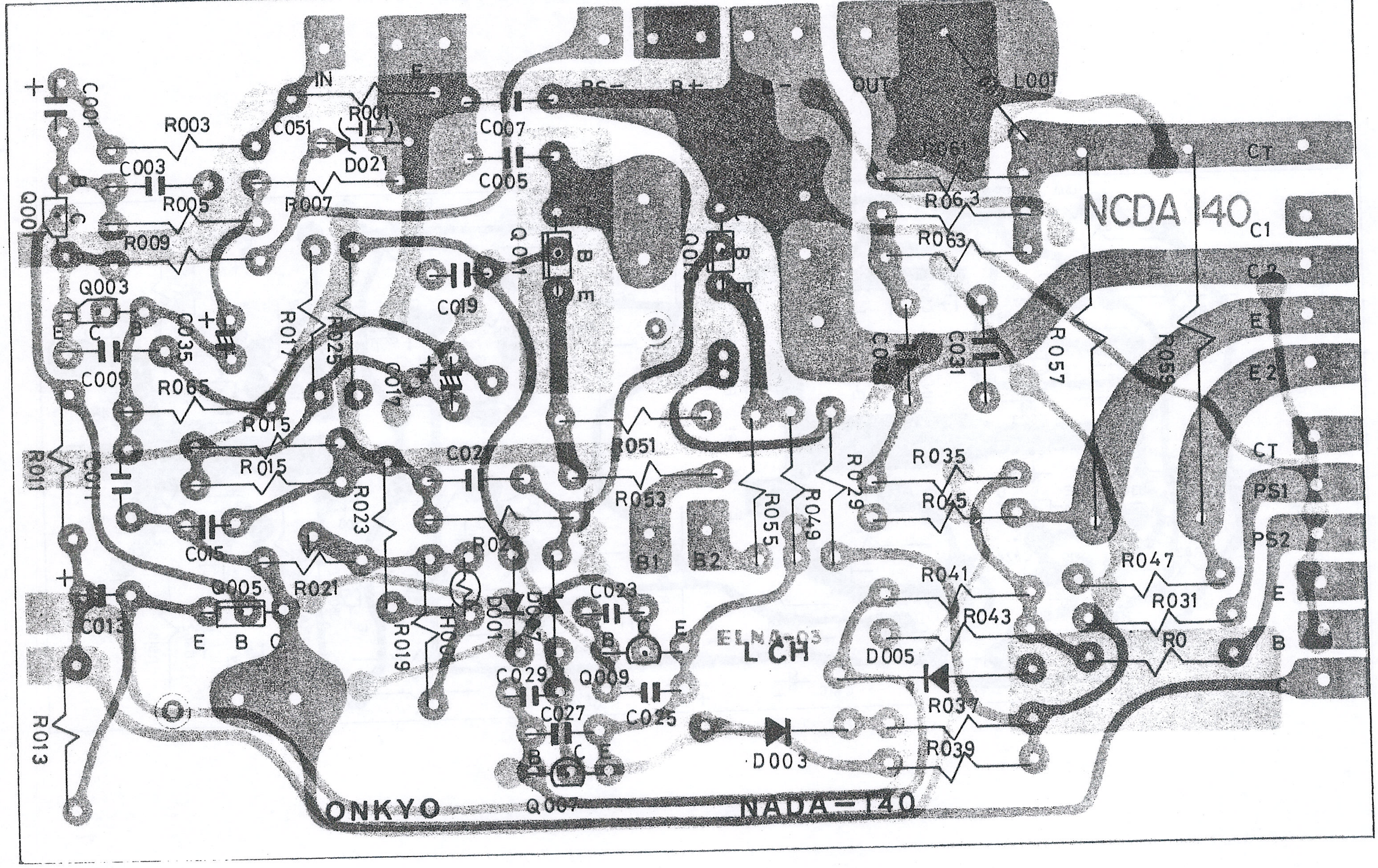
POWER SUPPLY ASS'Y
NAPS-141


AC
AC
BS
FUSE 0.2
FUSE 0.2
R109
C105
D103
BF-
BP+
BP-
R110
R107
R106
E
R108
R105
C112
C111
D113
B+
AC (B-)
AC (B-)
B-
D711
D712
E
C
B
Q104
C103
D101
Q103
Q102
Q101
D102
C102
C104
ONKYO
R104
R102
R103
R101
NCPS-141

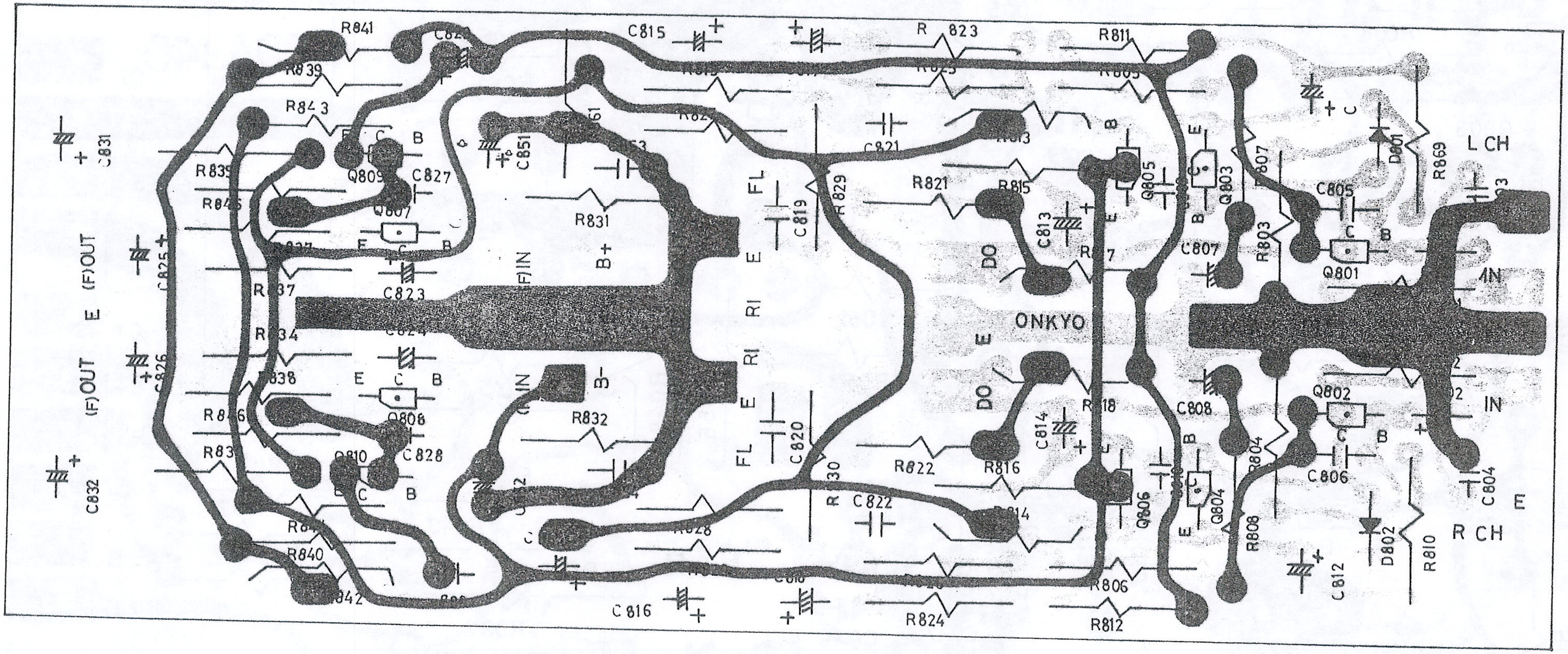
MC AMP ASS'Y
NAAF-137


R708
NCAF-137
ONKYO
R710
C710
Q704
Q702
C706
R712
C708
R716
C714
R714
C704
L702
R704
R702
C702
ELNA-E7A
R ch
IN
E
E
OUT
B-
D701
Q711
R713
C712
C731
R715
C713
R711
R707
R705
C709
R709
Q703
Q701
C703
R703
R701
C701
L ch
OUT
E
IN

MAIN AMP ASS'Y NADA-140(NADA-140a)

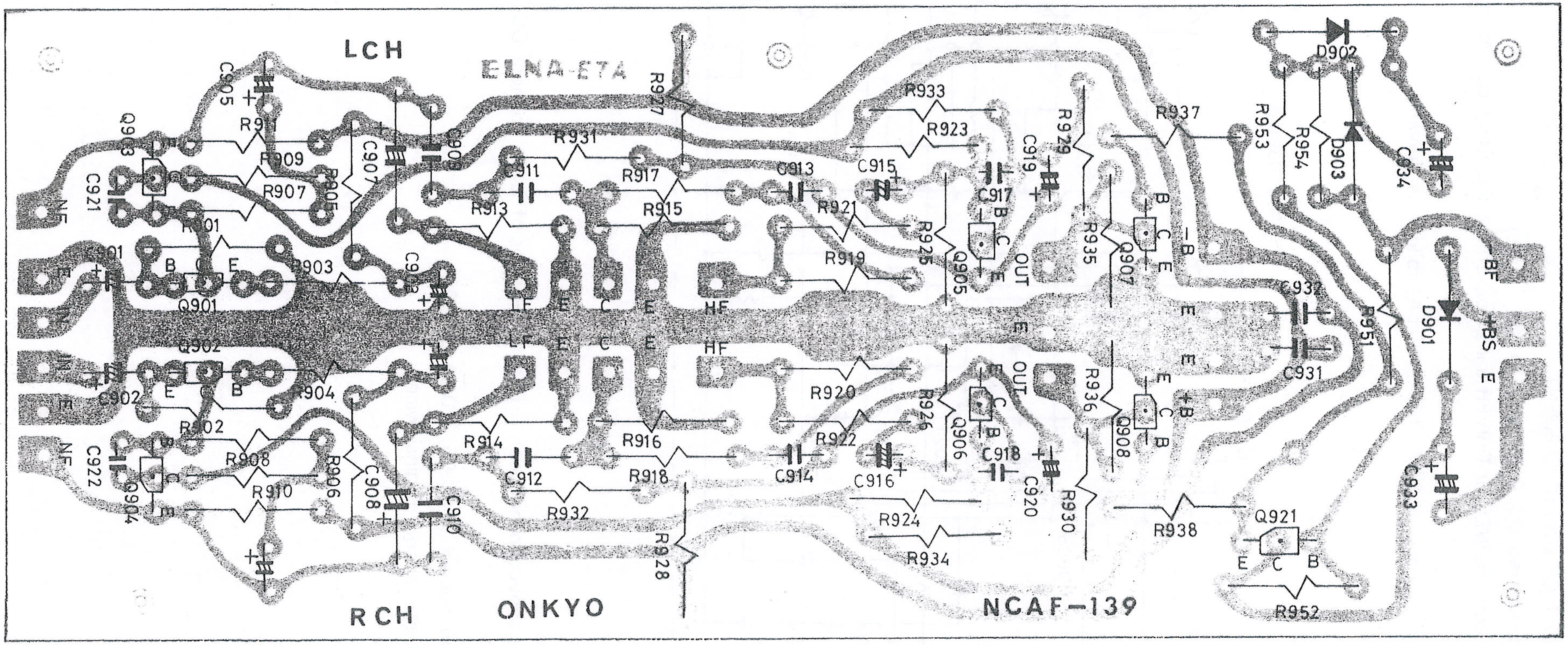

IN
E
PS−
B+
B−
OUT
L001
R061
R063
R063
NCDA 140
C1
C2
E1
E2
CT
CT
PS1
PS2
E
B
C001
R003
C003
R005
R009
Q001
B
C
Q003
E
C
B
C035
C009
R065
R015
R015
R011
C011
C013
C015
Q005
E
B
C
R021
R017
R025
R023
R019
C017
C019
C021
C051
R001
D021
R007
C007
C005
Q011
B
E
Q013
B
E
C033
C031
R057
R059
R051
R053
R055
R049
R029
R035
R045
B1
B2
R027
TH001
D001
D007
C023
Q009
E
B
C025
C029
C027
Q007
B
C
E
ELNA-03
L CH
R041
R043
R047
R031
R0
D005
R037
D003
R039
ONKYO
NADA−140

EQUALIZER AMP ASS'Y NAAF-138


C832
(F)OUT
E
(F)OUT
C831
C826
C825
R833
R846
R838
R834
R837
R845
R835
R840
R842
R839
R841
R843
Q810
Q808
Q807
Q809
C828
C824
C823
C827
E
C
B
(F)IN
(F)IN
C851
R832
R831
B-
B+
FL
E
RI
RI
E
FL
C820
C819
R830
R829
C822
C821
R822
R821
R824
R823
R816
R815
R814
R813
R812
R811
R806
R805
DO
E
DO
C814
C813
R818
R817
ONKYO
Q806
Q805
Q804
Q803
C808
C807
R808
R804
R803
R807
C812
C806
C805
Q802
Q801
D802
D801
R810
R869
C816
C815
C804
IN
IN
R CH
L CH

TONE AMP ASS'Y

NAAF-139


LCH
RCH
ELNA-E7A
ONKYO
NCAF-139
NF
E
IN
IN
E
NF
BF
+BS
E
LF
HF
OUT
-B
+B
Q901
Q902
Q903
Q904
Q905
Q906
Q907
Q908
Q921
D901
D902
D903
C901
C902
C905
C907
C908
C910
C911
C912
C913
C914
C915
C916
C917
C918
C919
C920
C921
C922
C931
C932
C933
C934
R901
R902
R903
R904
R905
R906
R907
R908
R909
R910
R911
R913
R914
R915
R916
R917
R918
R919
R920
R921
R922
R923
R924
R925
R926
R927
R928
R929
R930
R931
R932
R933
R934
R935
R936
R937
R938
R951
R952
R953
R954
B
C
E

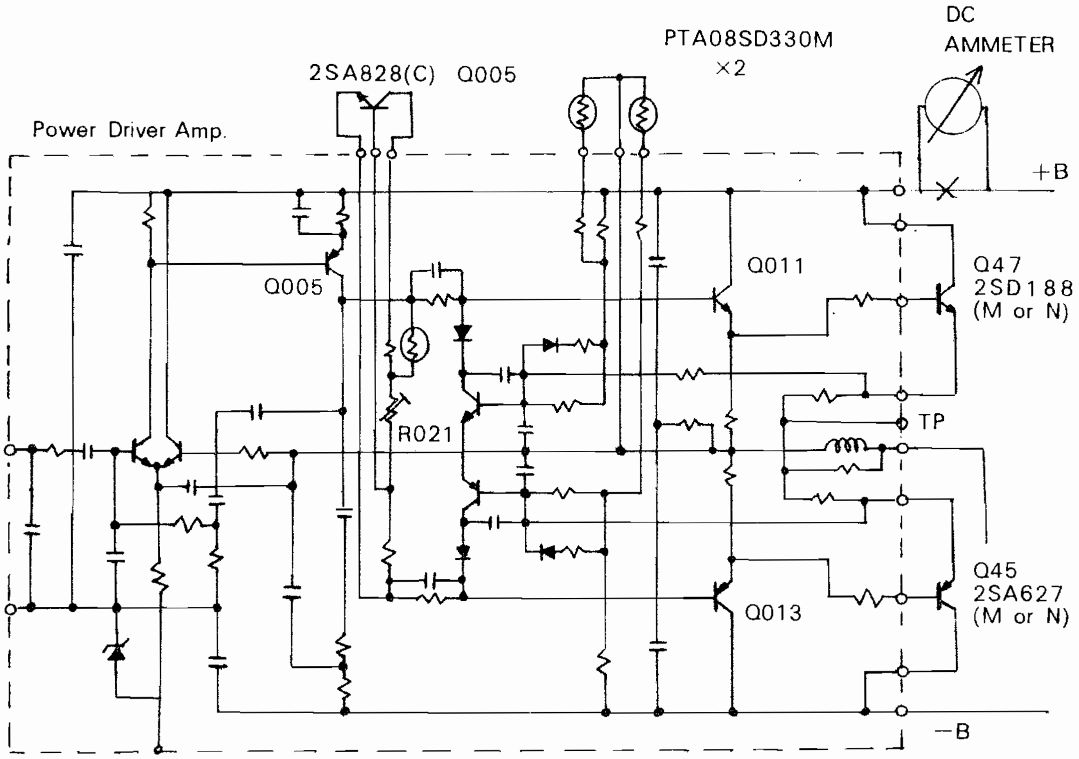
AUDIO

ADJUSTMENT OF IDLING CURRENT

Instrument required: DC Ammeter 50mA or 100mA.

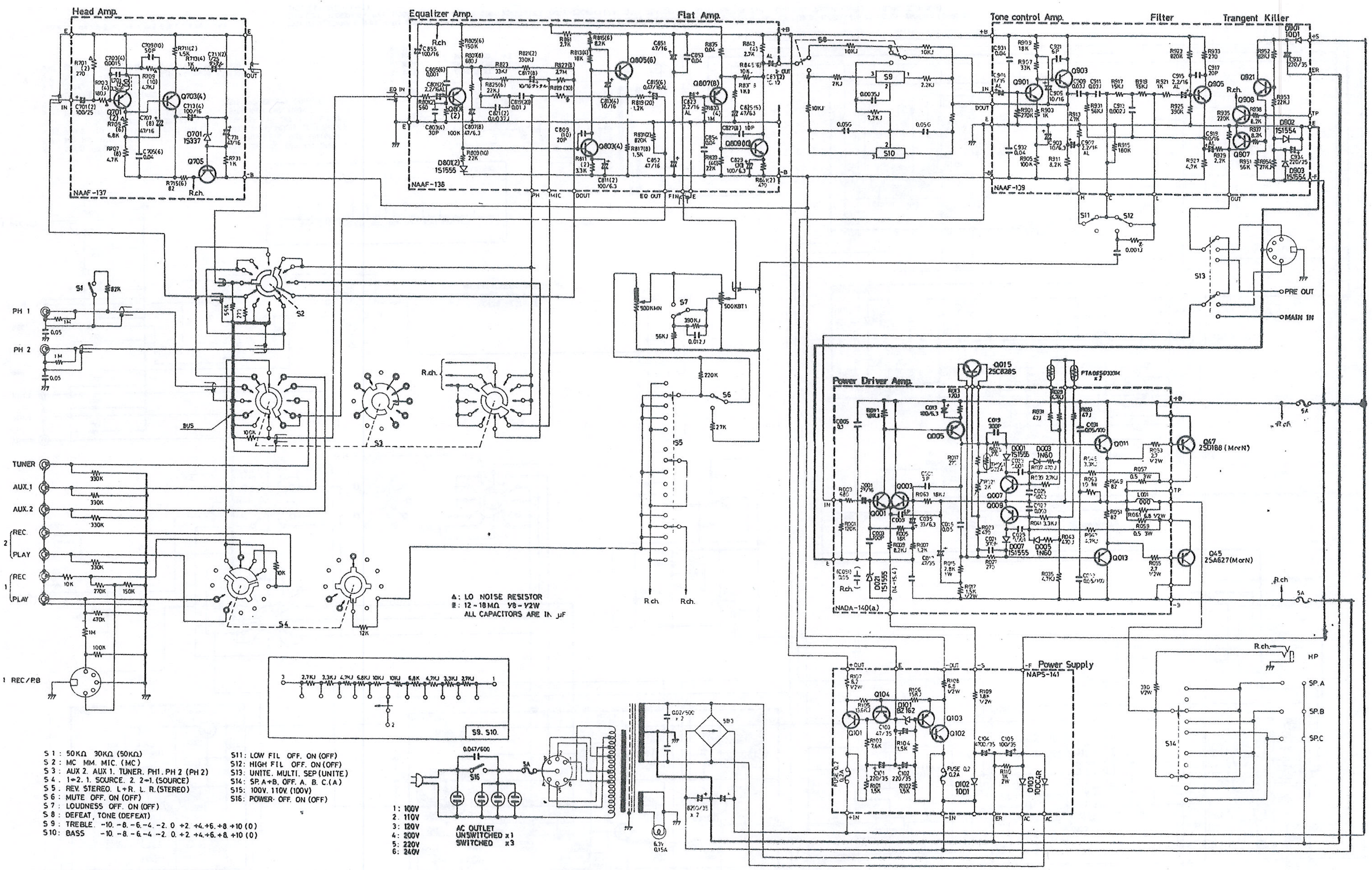
When replacing POWER or DRIVER transistor, check the idling current of POWER transistor.

To adjust to normal value(40+5mA, −0mA), follow as drawing.


DC
AMMETER
PTA08SD330M
×2
2SA828(C) Q005
Power Driver Amp.
+B
Q005
Q011
Q47
2SD188
(M or N)
R021
TP
Q45
2SA627
(M or N)
Q013
−B

1. Cut the connection between +B and collector of Q47, connect DC Ammeter.
2. Adjust the current to 40+5, −0mA by R021,
3. After adjust, connect original wiring.

SCHEMATIC DIAGRAM


Head Amp.
NAAF-137
Equalizer Amp.
Flat Amp.
NAAF-138
Tone control Amp.
Filter
Trangent Killer
NAAF-139
Power Driver Amp.
NADA-140(a)
Power Supply
NAPS-141
PH 1
PH 2
TUNER
AUX.1
AUX.2
REC
PLAY
1 REC/P.B
PRE OUT
MAIN IN
HP
SP.A
SP.B
SP.C
S9. S10.
1: 100V
2: 110V
3: 120V
4: 200V
5: 220V
6: 240V
AC OUTLET
UNSWITCHED x1
SWITCHED x3

▲: LO NOISE RESISTOR
※: 12 ~ 18MΩ 1/8 ~ 1/2W
ALL CAPACITORS ARE IN μF

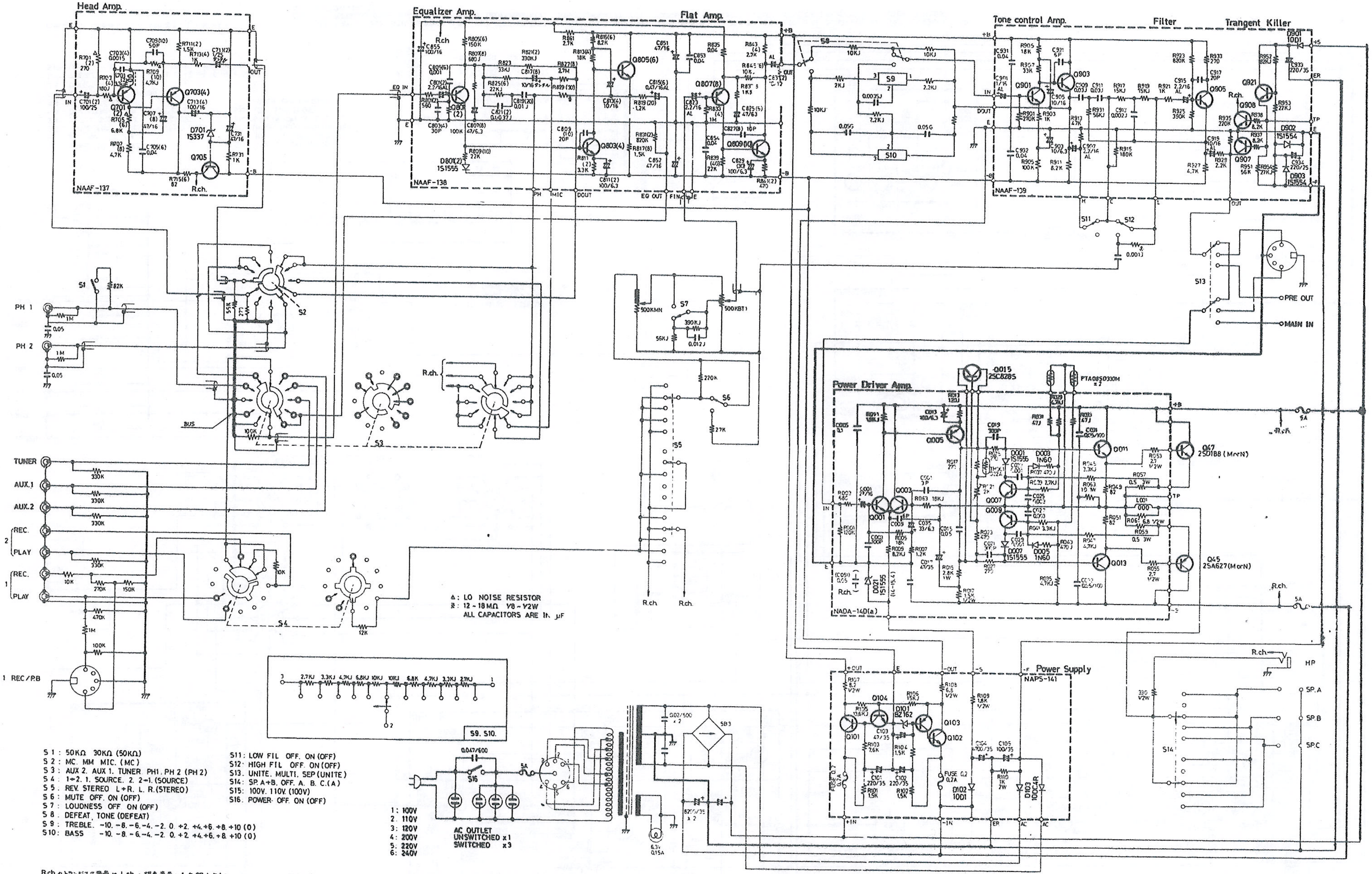
S 1 : 50KΩ 30KΩ (50KΩ)
S 2 : MC MM. MIC. (MC)
S 3 : AUX 2. AUX 1. TUNER. PH1. PH 2 (PH 2)
S 4 . 1⇒2. 1. SOURCE. 2. 2⇒1. (SOURCE)
S 5 . REV. STEREO. L+R. L. R. (STEREO)
S 6 : MUTE OFF. ON (OFF)
S 7 : LOUDNESS OFF. ON (OFF)
S 8 : DEFEAT, TONE (DEFEAT)
S 9 : TREBLE. -10. -8. -6. -4. -2. 0 +2. +4. +6. +8 +10 (0)
S10 : BASS -10. -8. -6. -4 -2. 0. +2 +4. +6. +8. +10 (0)

S11 : LOW FIL OFF. ON (OFF)
S12 : HIGH FIL OFF. ON (OFF)
S13 : UNITE. MULTI. SEP (UNITE)
S14 : SP. A+B. OFF. A. B. C. (A)
S15 : 100V. 110V. (100V)
S16 : POWER· OFF. ON (OFF)

R.ch.のトランジスタ番号はL.ch.の相当番号に1を加えたもの

Q701. Q703. 2SA705 (7 or 8). Q711. 2SA678 (7 or 8). Q801. Q807. 2SA572-YL (4 or 5). Q803. Q805. Q809. Q901. Q903. Q905 2SC632A (71 or 81). Q907. Q908. 2SC634A (7 or 8) Q921. 2SC634A (O-0203)
Q001. Q003. 2SC632A (O-0201). Q005. 2SA705 (O-0209) P. Q007. 2SA678 (7) Q009. 2SC634A (7). Q013. 2SA706 (32) Q011 2SC1124 (2) P. Q101. Q102. 2SD235 (O or Y) Q104. 2SC828 (S)
Q103. 2SA572WN (4 or 5).

SCHEMATIC DIAGRAM


Head Amp.
NAAF-137
Equalizer Amp.
Flat Amp.
NAAF-138
Tone control Amp.
Filter
Trangent Killer
NAAF-139
S8
S9
S10
S9. S10.
PH 1
PH 2
S1
S2
S3
S4
S5
S6
S7
S11
S12
S13
S14
S15
S16
BUS
TUNER
AUX.1
AUX.2
REC.
PLAY
1 REC/P.B
500KMN
500KBT1
PRE OUT
MAIN IN
Power Driver Amp.
NADA-140(a)
Q015 2SC828S
PTA08SD330M x2
Q47 2SD188 (MorN)
Q45 2SA627(MorN)
Power Supply
NAPS-141
HP
SP.A
SP.B
SP.C
AC OUTLET
UNSWITCHED x1
SWITCHED x3
1: 100V
2. 110V
3: 120V
4: 200V
5: 220V
6: 240V
R.ch.

Δ: LO NOISE RESISTOR
※: 12 ~ 18MΩ 1/8 ~ 1/2W
ALL CAPACITORS ARE IN μF

S 1 : 50KΩ 30KΩ (50KΩ)
S 2 : MC. MM MIC. (MC)
S 3 : AUX 2. AUX 1. TUNER PH1. PH 2 (PH 2)
S 4 : 1→2. 1. SOURCE. 2. 2→1. (SOURCE)
S 5 : REV. STEREO L+R. L. R. (STEREO)
S 6 : MUTE OFF. ON (OFF)
S 7 : LOUDNESS OFF ON (OFF)
S 8 : DEFEAT, TONE (DEFEAT)
S 9 : TREBLE. -10. -8. -6. -4. -2. 0. +2. +4. +6. +8. +10 (0)
S10 : BASS -10. -8. -6. -4. -2. 0. +2. +4. +6. +8. +10 (0)

S11 : LOW FIL OFF. ON (OFF)
S12 : HIGH FIL OFF. ON (OFF)
S13. UNITE. MULTI. SEP (UNITE)
S14 : SP. A+B. OFF. A. B. C. (A)
S15 : 100V. 110V. (100V)
S16. POWER OFF. ON (OFF)

R.ch.のトランジスタ番号は L.ch.の相当番号に1を加えたもの

Q701. Q703. 2SA705 (7 or 8). Q711. 2SA678 (7 or 8). Q801. Q807. 2SA572-YL (4 or 5) Q803. Q805. Q809. Q901. Q903. Q905 2SC632A (71 or 81) Q907. Q908. 2SC634A (7 or 8) Q921. 2SC634A (O-0203)
Q001. Q003. 2SC632A(O-0201). Q005. 2SA706(O-0209)P. Q007. 2SA678(7) Q009 2SC634A(7) Q013. 2SA706(32) Q011 2SC1124(2)P. Q101. Q102 2SD235 (OorY) Q104. 2SC828(S)
Q103. 2SA572WN (4or5)

PARTS LIST

PARTS NO.	DESCRIPTION	SPECIFICATION	Q'TY
	ASSEMBLIES		
001	MC Amp. ass'y	NAAF-137	1
002	Equalizer Amp. ass'y	NAAF-138	1
003	Tone Amp. ass'y	NAAF-139	1
004	Main Amp. ass'y(left)	NADA-140	1
005	Main Amp. ass'y(right)	NADA-140a	1
006	Power Supply ass'y	NAPS-141	1
	SEMICONDUCTORS, LAMP		
101	Transistor	2SA627(M or N)	2
102	Transistor	2SD188(M or N)	2
103	Transistor	2SC828(S)	2
104	Silicon Diode	5B3	1
105	Posistor	PTA08SD330M	4
106	Pilot Lamp	6.3V 0.15A	1
	TRANSFORMER		
201	Power Transformer	NPT-523ADGQ	1
	CAPACITORS		
301	Electrolytic	EC 35V 8200μF	2
	RESISTORS		
401	Variable	N24RDG500KBH500KBT130	1
	SWITCHES, TERMINALS & ETC		
601	Switch-Rotary	NRSM-2211-25Y-I	2
602	Switch-Rotary	NRSM-235-25Y-I	1
603	Switch-Rotary	NRSM-245a-25Y-I	1
604	Switch-Rotary	NRSM-263a-25Y-I	1
605	Switch-Rotary	NRSM-365a-20Y-I	1
606	Switch-Rotary	NRSM-225a-20Y-I	1
607	Switch-Rotary	NRSM-142-25Y-I	1
608	Switch-Lever	SLS-3B	4
609	Switch-Slide	S-JO275-2	1
610	Switch-Slide	KJ-0213	1
611	Switch-Slide	SJ-0450	1
612	Switch-Push	ESB-1137S	1
613	Jack-Stereo Headphone	3P64M	1
614	Socket-DIN	SI-8121	2
616	Socket-Pilot Lamp	VE-0202	1
617	Fuse Holder	SN-2052	1
618	Fuse Holder	FF-1S-H	2
619	Fuse	5A-T	5
621	Pin Jack	NTM-10PB1-S2	2
622	Pin Jack	S-Q3459	1

PARTS NO.	DESCRIPTION	SPECIFICATION	Q'TY
628	Speaker Terminal ass'y(red)		6
629	Speaker Terminal ass'y(black)		6
640	Socket-Power Transistor	SA-3905	4
641	Socket ass'y	GW-101	1
642	Socket ass'y	GW-102	1
643	Socket ass'y	GW-103	1
644	Socket ass'y	GW-104	1
645	Socket ass'y	GW-105	1
646	Socket ass'y	GW-106	1
647	Socket ass'y	GW-107	1
648	Socket ass'y	GW-108	1
649	Socket ass'y	GW-109	1
650	Socket ass'y	GW-110	1
651	Socket ass'y	GW-111	1
652	Socket ass'y	GW-112	1
653	Socket ass'y	GW-113	1
654	Socket ass'y	GW-114	1
655	Socket ass'y	GW-115	1
655	Socket ass'y	GW-116	1
	CHASSIS, SCREWS & NUTS		
702	Right Frame		1
703	Left Frame		1
710	Holder-Pilot Lamp		1
711	Cover-Pilot Lamp		1
712	Cover-Rear		1
713	Heat Sink		2
724	Upper Panel		1
727	Cover-Power Transistor		4
735	Screw-Case	4+10F−N(bronze)	4
756	Washer-Fiber		4
	CASE		
801	Case		1
802	Cover-Upper		1
803	Plate-Upper Cover		1
804	Holder-Upper Cover Plate		2
805	Front Panel		1
806	Decoration bar-right		1
807	Decoration bar-left		1
808	Metal Fitting-Decoration bar		4
809	Facet-Power		1
810	Knob-Upper Cover		1
811	Stopper-Upper cover		2
812	Cushion-Upper cover		2
813	Rubber Guide-Upper cover		4
814	Cushion-Upper cover(front down)		4

PARTS LIST

PARTS NO.	DESCRIPTION	SPECIFICATION	Q'TY
815	Rubber Cushion		5
816	Knob-Selector		2
817	Knob-Tone		3
818	Knob-Mode(small)		3
819	Knob-Volume		1
820	Knob-Balance		1
821	Knob-Power		1
	*** NAAF-137 ***		
001-101	Transistor	2SA705(7 or 8)	4
102	Transistor	2SA678(7 or 8)	1
103	Zener Diode	1S337	1
001-201	Coil-Choke	NCCH-1502	2
	*** NAAF-138 ***	(rep A493GR)	
002-101	Transistor	2SA572YL(5) (rep A493GR)	2
102	Transistor	2SA572YL(4 or 5)	2
103	Transistor	2SC632A(71 or 81)	6
104	Silicon Diode	1S1554	2
	*** NAAF-139 ***		
003-101	Transistor	2SC632A(71 or 81)	6
102	Transistor	2SC634A(7 or 8)	2
103	Transistor	2SC634A(0-0203)	1
104	Silicon Diode	1S1555	2
105	Silicon Diode	10D1	1
	*** NADA-140 ***		
004-101	Transistor	2SC632A(0-0201)	2
102	Transistor	2SC634A(7)	1
103	Transistor	2SA678(7)	1
104	Transistor	2SC1124(2)P	1
105	Transistor	2SA706(32)P	1
106	Transistor	2SA706(0-0209)P	1
107	Silicon Diode	1S1535	2
108	Germanium Diode	1N60NFM	2
109	Zener Diode	1S338	1
110	Thermistor	D-22A	1
004-201	Speaker Coil	S-1.3B	1
004-401	Resistor-Semi Variable	RVC 1417 2K	1
402	Resistor-Wire Wound	RMSS 3W 0.5 SW	2
403	Resistor-Metal Film	RNU ½ K 2.7	2
004-702	Radiator	223BD820	2
703	Radiator		1
	*** NADA-140a ***		
005-101	Transistor	2SC632A(0-0201)	2

PARTS NO.	DESCRIPTION	SPECIFICATION	Q'TY
005-102	Transistor	2SC634A(7)	1
103	Transistor	2SA678(7)	1
104	Transistor	2SC1124(2)P	1
105	Transistor	2SA706(32)P	1
106	Transistor	2SA706(0-0209)P	1
107	Silicon Diode	1S1535	2
108	Germanium Diode	1N60NFM	2
109	Thermistor	D-22A	1
005-201	Speaker Coil	S-1.3B	1
005-401	Resistor-Semi Variable	RVC 1417 2K	1
402	Resistor-Wire Wound	RMSS 3W 0.5 SW	2
403	Resistor-Metal Film	RNU ½ K 2.7	2
005-702	Radiator	223BD820	2
703	Radiator		1
	*** NAPS-141 ***	(rep 2SA561)	
006-101	Transistor	2SA572WN(4 or 5)	1
102	Transistor	2SC828(S)	1
103	Transistor	2SD235(O or Y)	2
104	Silicon Diode	10D1	1
105	Silicon Diode	10DC4R	1
106	Zener Diode	BZ-162	1
006-301	Capacitor-Electrolytic	EC 25V 47μF	1
302	Capacitor-Electrolytic	EC 35V 100μF	1
303	Capacitor-Electrolytic	EC 35V 220μF	2
304	Capacitor-Electrolytic	EC 35V 470μF	1
006-604	Fuse	B-LCO. 2A	2
	*** PRINTED CIRCUIT BOARD ***		
001-701	Printed Circuit Bcard	NCAF-137	1
002-701	Printed Circuit Bcard	NCAF-138	1
003-701	Printed Circuit Bcard	NCAF-139	1
004-701 005-701	Printed Circuit Bcard	NCDA-140	2
006-701	Printed Circuit Bcard	NCPS-141	1